

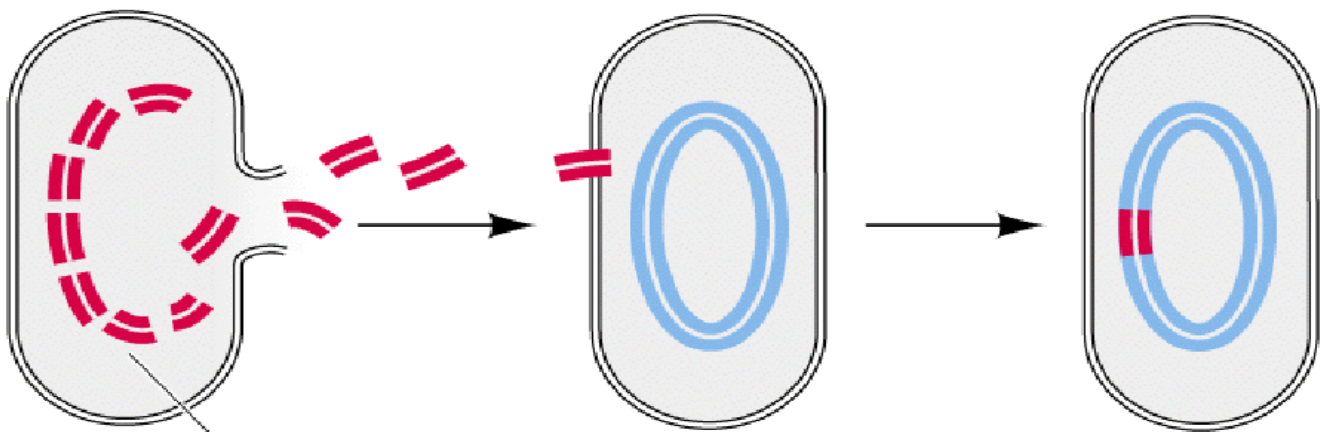
Synthetic Biology  
Competition

UCSF 2013

# What does Transformation mean to Biologists?

- Transformation is a process by which foreign DNA is inserted into an organism, to provide it with the ability to create different things.
- Transformation is usually done in simple, unicellular organisms such as bacteria and yeast. The types of bacteria that are used in the lab are harmless.

Bacteria



Foreign DNA

Permission pending from Sinaur Associates, Inc.

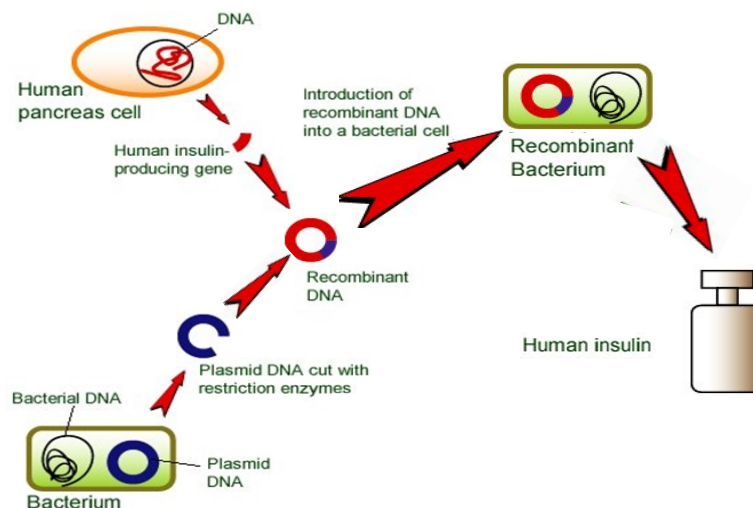
# Uses of Transformation in Biological Research

In nature, jellyfish glow green because of a gene scientists have aptly named green fluorescent protein (GFP).



Since its discovery, GFP has been isolated and is now used by scientists as biological sensors and trackers.

Scientists have also been able to isolate the human gene that codes for insulin, and have inserted the gene into bacteria, which produce insulin for diabetics.



Scientists continue to use transformation in bacteria to produce alternative sources of biofuels, drugs, and other useful products.